BOW-CANMORE

VISUAL IMPACT ASSESSMENT DESIGN MANUAL

Alberta Tourism

March, 1991

Alberta
TOURISM

Office of the Deputy Minister

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To Whom It May Concern:

The Bow-Canmore Visual Impact Assessment was initiated by Alberta Tourism as a component study of the Bow-Canmore Tourism Development Framework. The Framework's purpose is to provide information for the use of the public and private sectors, non-profit organizations and the public at large in the planning and decision-making for tourism development within the Bow-Canmore valley.

The Bow-Canmore valley features the spectacular mountain landscape of the Canadian Rockies. The high natural scenic value of the area is a primary resource. This Visual Impact Assessment was undertaken as a means of assessing the visual quality of the area and developing a methodology for sustaining the areas natural beauty. It is a study that is unique within the Province of Alberta for two reasons: 1) it marks the first time that visual quality and potential visual impacts from development within a given area have been so comprehensively examined; and 2) it marks the first time in Alberta that current computer technology has been extensively used and integrated into the process of visual impact assessment.

It is acknowledged that this study is not the definitive word on the subject of visual impact assessment within the Bow-Canmore valley. This study does, however, attempt to establish a firm base on which further work on the assessment of visual impact can be built, whether alteration to the area's landscape is proposed as a result of tourism development or for any other reason. In this regard, the Bow-Canmore Visual Impact Assessment is intended to provide valuable information as a reference document and be a useful model for future analyses. With further examination and discussion, the concept of sustaining visual quality can be fully realized as a positive component of growth and development in the Bow-Canmore area.

It should be noted that this study was conducted by an independent consultant commissioned by Alberta Tourism. As such, this study does not represent government policy, nor does it imply any commitment to implementation at this time.

If you have any comments regarding this study, please contact:

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Additional copies of this report are available by contacting the above address or by telephoning 427-2501.

Yours sincerely,

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1. INTRODUCTION

In recent years there has been increasing development pressure in the Bow-Canmore valley east of Banff National Park. Alberta Tourism, in recognizing the complexity of issues associated with development in this area, has undertaken the task of coordinating the preparation of a Tourism Development Framework. The Framework is intended to provide specific information and recommendations for use by the private and public sectors, as well as non-profit organizations, throughout the initial planning and decision making phases of development.

The Bow-Canmore Visual Impact Assessment is one of the components of the Framework. The aim of this study is to determine a methodology for sustaining the visual quality of the environment in relation to future development. It is intended that this methodology can be suitably applied as development proceeds within the valley. In this regard, the study outlines suggestions as to how this methodology could be implemented by proponents, planners, land use administrators and regulatory agencies at both the municipal and provincial levels.

The final products of this study are comprised of the following:

1) *Bow-Canmore Visual Impact Assessment-Report.*

   This document describes the process that was used to determine the method and means of sustaining the visual quality of the Bow-Canmore valley. It may be used as a guide to establishing a methodology for the visual impact assessment component of any environmental impact assessments required in the valley.

2) *Bow-Canmore Visual Impact Assessment-Technical Appendix.*

   The *Technical Appendix* provides more detailed information regarding computerized derivation of the data for the study as well as further explanation of the Methodology. It should be used as an appendix to the *Bow-Canmore Visual Impact Assessment-Report,* providing technical clarification as necessary.

3) *Bow-Canmore Visual Impact Assessment-Design Manual.*

   This document is intended for use by proponents, planners and administrators of development in the valley. It may be used following an overview of the *Executive Summary* in the *Report.* The *Design Manual* may also be appropriately applied to the built environment throughout the conceptual design, planning and construction phases of development.

4) *Bow-Canmore Visual Impact Assessment-Slide Presentation.*

   This *Slide Presentation* with an accompanying written text is intended for use as an introduction to the visual impact assessment process in the valley. It is organized in three sections; firstly, a general introduction to visual impact assessments; secondly,

the methodology used in this assessment and the findings; and thirdly, the implementation of the findings and guidelines for visually appropriate development.

5) *Bow-Canmore Visual Impact Assessment-Digital Tapes of Maps.*

All the original computer base data as well as the new maps that have been generated are available in digital format for use in future studies in the Bow-Canmore valley.

The *Bow-Canmore Visual Impact Assessment-Design Manual* has been developed to assist planners, administrators and proponents of development in evaluating proposed land use changes relative to visual criteria.

2. SUMMARY OF PROCESS

2.1 TASK 1: Review Executive Summary

The *Executive Summary* presents an overview of the results of the Bow-Canmore Visual Impact Assessment. It is found in the first section of the *Bow-Canmore Visual Impact Assessment-Report.* It is helpful to review this summary in order to understand the intent of the *Design Manual.* The *Bow-Canmore Visual Impact Assessment-Report* also contains details regarding the methodology used to establish the guidelines outlined in detail later within this *Design Manual.* Please also refer to Figure 1: *Design Manual Process Diagram.*

2.2 TASK 2: Identify Visual Quality Objectives

Visual Quality Objectives suggest appropriate levels of change to the landscape for the area of interest or for the proposed development area. The visual concept for future land use conceived for the Bow-Canmore valley is "change to sustain natural beauty". As illustrated in Appendix, Map 1: *Visual Quality Objectives*, "Full Protection" should be given to rocky mountain peaks, rivers and lakes. "Partial Protection" is recommended for coniferous forests, mixed vegetated areas, meadows, reservoirs and minor impacts to water and to vegetated areas. "Modification and Improvement" should be considered for major roads, towns, hamlets and highway commercial development. "Improvement" is recommended for mines and industrial plants.

The potential for man-made intervention exists in the latter three categories. This ranges from very sensitive low impact development in "Partial Protection" areas, to quality development and redevelopment in "Modification and Improvement" areas and finally to rehabilitation of "Improvement" areas.

Using either digital or hand drawn maps at 1:20,000 scale, overlay the map which identifies the area of interest with Appendix, Map 1: *Visual Quality Objectives* to find the recommended level of protection or modification. The initial design concept should be reviewed to ensure conformance with the Visual Quality Objectives.

2.3 TASK 3: Identify Landscape Character Type

Appendix, Map 2: *Landscape Character* comprises thirteen landscape character types which range from most natural, such as rocky mountain peaks or coniferous forests, to minor impacts to vegetated areas or water, to manmade developments such as hamlets, roads, or mining. Again, using either digital or hand drawn maps at 1:20,000 scale, overlay the map which identifies the area of interest with Appendix, Map 2: *Landscape Character* to find which landscape character types will be effected.

2.4 TASK 4: Identify Key Viewpoints and Analyze Frequency Seen

The most important viewpoints in the Bow-Canmore valley were established for two reasons; firstly to identify representative views for simulation of change, and secondly to identify the level of importance regarding seen and unseen areas.

The area of interest of a proposed development should be reviewed relative to its visibility from important viewpoints. Generally, there are three types of important viewpoints that were identified in the Bow-Canmore Visual Impact Assessment. These are as follows:

- Eight most important viewpoints were identified by a public group. The key views from these points are shown in Figure 2: *Eight Most Important Views.* The locations of all viewpoints are illustrated in Appendix, Map 3: *Viewpoint Locations for Viewshed Generation.*

- Highways 1 and 1A were identified as being important as they represent the areas of highest public use, particularly Highway 1, the Trans-Canada Highway. In 1989, the average annual daily traffic count (both ways) along Highway 1 in this area was 10,130 vehicles. The most important viewpoints along the highways occur at pullouts where people stop to view the scenery. For the purposes of the visual impact assessment, eight evenly spaced points along each highway were selected for viewshed generation (see Appendix, Map 3: *Viewpoint Locations for Viewshed Generation).*

- Areas of scenic significance based on ecological, historical, cultural or recreational value were also identified as important viewpoints (see Appendix, Map 4: *Areas of Scenic Significance*). Development located within one kilometre (foreground view) of these areas should be particularly sensitive to the visual quality guidelines.

The details of this review may be discussed with a local public group involved in the visual review process. However, the general procedure is as follows:

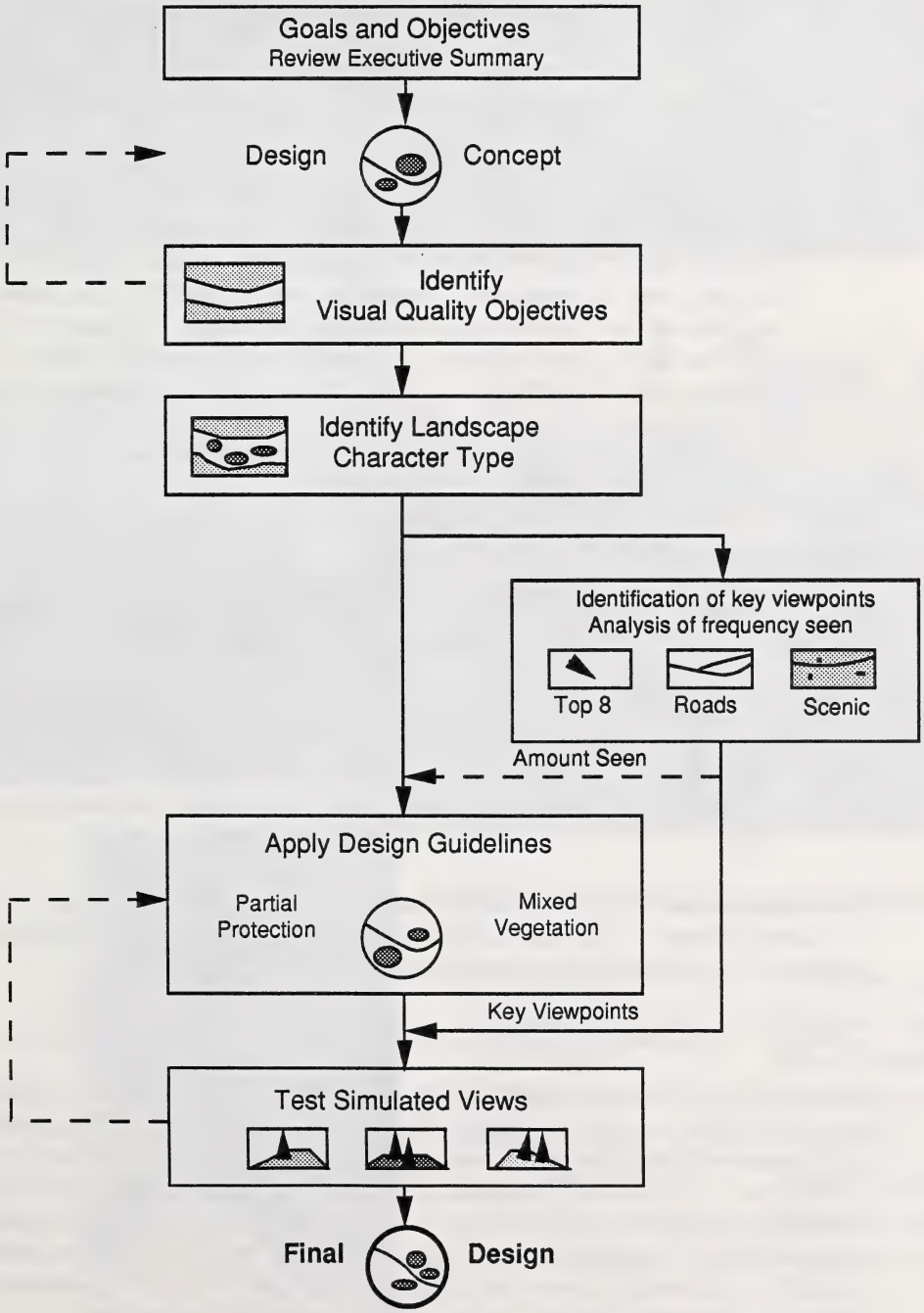
A. Viewpoint Identification

The most important viewpoints within the area of interest should be identified. These should be selected from the Eight Most Important Viewpoints or from locations on Highways 1 or 1A. Two or three of the most important viewpoints should then be used for a 3-dimensional simulation of the proposed changes. The following maps may be used to assist in identifying the viewpoints:

- Appendix, Map 5: *Frequency of Areas Seen from the Eight Most Important Viewpoints.*
- Appendix, Map 6: *Frequency of Areas Seen from Highways 1 and 1A.*

FIGURE 1

BOW-CANMORE VISUAL IMPACT ASSESSMENT DESIGN MANUAL PROCESS DIAGRAM



2.4 TASK 4: Identify Key Viewpoints and Analyze Frequency Seen (Continued)

B. Analysis of Frequency Seen

This is an optional review process, dependent upon the circumstances of the change that is being anticipated. It was established in the *Bow-Canmore Visual Impact Assessment-Report* that areas unseen from a combination of important viewpoints may not require guidelines as stringent as those proposed for the Visual Quality Objective zones. Conversely, frequently seen areas should be afforded additional protection or improvement.

A map illustrating the area proposed for change should be overlaid with Appendix, Map 7: *Comparison of Visual Quality Objectives in Unseen Areas,* to determine whether the area is seen from important viewpoints. If the area is not seen from these important viewpoints, the Visual Quality Objectives for the area may be considered somewhat less stringently. The areas of interest map should also be overlaid with Appendix, Map 5: *Frequency of Areas Seen from the Eight Most Important Viewpoints* and Appendix, Map 6: *Frequency of Areas Seen from Highways 1 and 1A,* and Appendix, Map 8: *Slope.* If the area is frequently seen, it is important that the Visual Quality Objectives for the area are strictly observed. It is important to realize that, in this analysis, only visual impacts are being considered.

2.5 TASK 5: Apply Visual Quality Guidelines

The proposal for the area of interest should be evaluated in terms of conformance with the visual quality guidelines contained in Sections 4 and 5 of this document. That is:

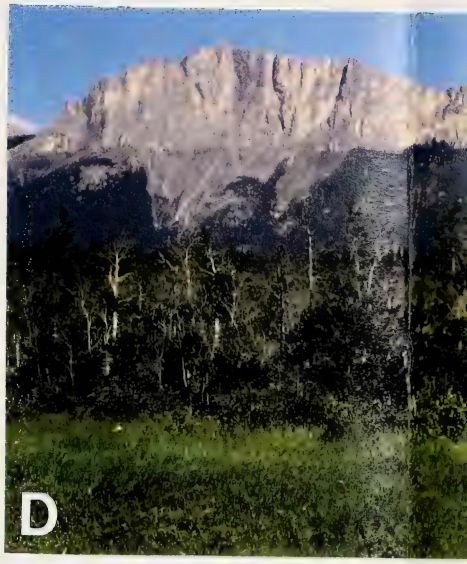
- Section 4: *General Guidelines; and*
- Section 5: *Guidelines for Visual Quality Objectives and Landscape Character Types.*

These guidelines have been established to assist in achieving the goal of sustaining the natural beauty of the Bow-Canmore valley. They should be used to the maximum extent for all scales of proposed development.

2.6 TASK 6: Test Simulated Views

Photographs of existing conditions should be taken from the two to three selected viewpoints (see Section 2.4: *Identify Key Viewpoints and Analyze Frequency Seen,* Part A: *Viewpoint Identification).* These views should be used to simulate the proposed conditions. The use of a 3-dimensional computer modelling system is recommended. Photographs may then be scanned to a computer "paint system" for modification to represent the proposed changes for the area of interest. The proposed changes should be accurately represented in the photographs. Figure 3: *Computer Simulated Views from Viewpoint #44* is an example of how this may be done.


A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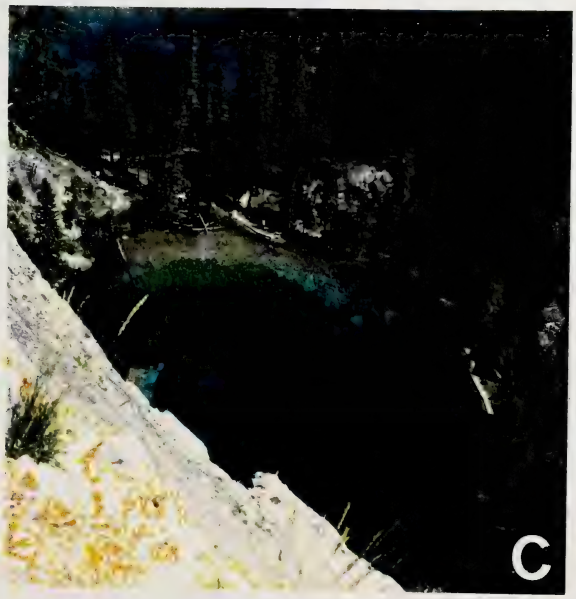
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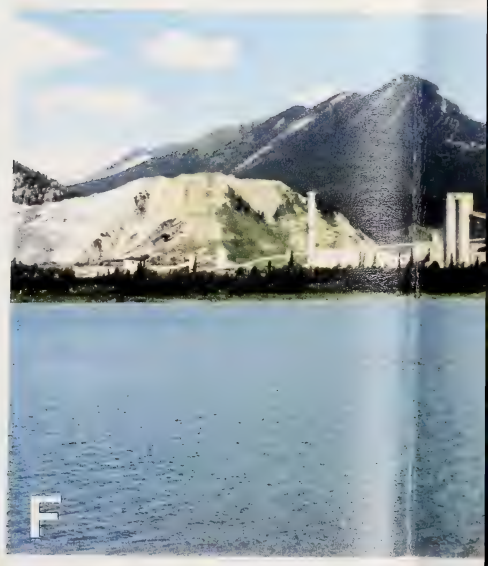
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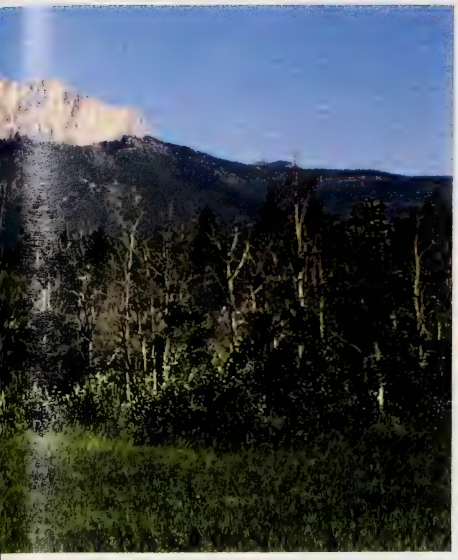
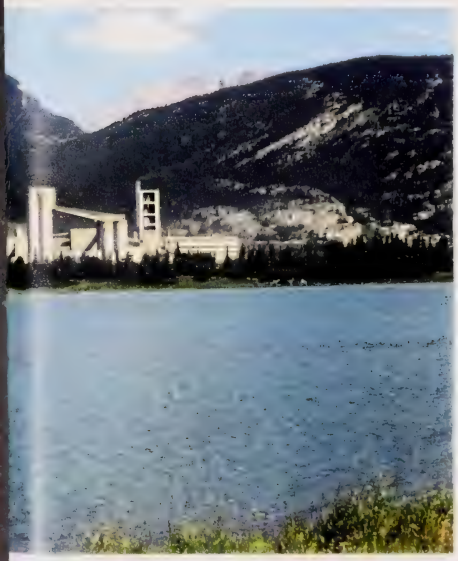




View #	Visual Quality Rating	Landscape Character Type
A (27)	Very Beautiful	Rivers and Lakes
B (3)	Very Beautiful	Coniferous Forests
C (6)	Very Beautiful	Rivers and Lakes
D (4)	Beautiful	Mixed Vegetation
E (44)	Moderate to Ugly	Town Core
F (5)	Ugly	Mines/Industrial
G (48)	Beautiful	Rivers and Lakes
H (61)	Beautiful to Moderate	Minor Impacts to Water

FIGURE 2:
Eight Most Important Views - Photographs

FIGURE 3:
Computer Simulated Views from Viewpoint #44

Upper Left: Existing Conditions (Moderate to Ugly)

Upper Right: Street Tree Planting Removed (Worse)

Lower Left: Bow Valley Motel and adjacent building increased to two stories (Same to Worse)

Lower Right: Existing light poles removed and a new pedestrian scale street lighting system installed (Better)

Note: Description in brackets refers to public group visual quality ratings in relation to existing conditions.

2.6 TASK 6: Test Simulated Views (Continued)

For small scale development proposals, accurate hand drawn perspectives based on photographs from frequently used viewpoints are acceptable.

The proposed views should be reviewed by a local regulating authority for conformance with the concept of "sustaining natural beauty". If they do not meet the required standards, refer back to the visual quality guidelines and modify the proposal for the area of interest accordingly. The simulated views test should then be repeated.

2.7 TASK 7: Develop Final Design

Following the modification of the conceptual design based on the above procedure, the final design should reflect visually sensitive and appropriate development.

3. HOW TO USE THIS MANUAL

3.1 Introduction

This *Design Manual* has been developed as one of the final products of the Bow-Canmore Visual Impact Assessment. This document, and the guidelines contained within it, do not constitute a set of regulations; but are intended as a reference to be used throughout the planning process and in the evaluation of development proposals within the Bow-Canmore valley. It is important to point out that guidelines for higher standards of visual quality in new developments are only tools. Development that is sensitive to the visual environment will only occur when governments, residents, developers and consultants share a common goal of preserving and enhancing the visual quality within areas of new development wherever they may be.

The guidelines within this *Design Manual* are organized from the most general to the most specific. The general guidelines apply to all proposed development while the specific guidelines apply to each of the thirteen landscape character types that have been categorized within the valley. Often there is overlap in the intent and the content of guidelines for the specific landscape character types. Familiarization with the general and specific guidelines, however, will enhance the user's understanding of how to achieve "change to sustain natural beauty".

The public participation component of Bow-Canmore Visual Impact Assessment indicated that there is a very real concern that the natural beauty of the Bow-Canmore valley may be eroded by insensitive development. These guidelines do not contain detailed site development and architectural controls (which are necessary, but beyond the scope of this assessment). They should, however, prove to be useful tools leading toward a more positive balance between the natural and built environments through more effective planning processes.

3.2 Qualifications, Limitations and Alternatives

The *Bow-Canmore Visual Impact Assessment-Design Manual* has been developed to assist planners, administrators and proponents of development in evaluating proposed land use changes relative to visual criteria. Further study is required before the following guidelines could be integrated into legislation regulating land use and development in the Bow-Canmore valley.

Quantitative recommendations in the guidelines, such as dimensioned setbacks, are starting points for the development of detailed regulations. Further refinement, as well as consideration of other important criteria (i.e. environmental), is required prior to implementation of specific regulations governing land use and development in the Bow-Canmore valley.

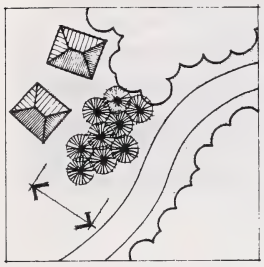
3.2 Qualifications, Limitations and Alternatives (Continued)

The general intent of the guidelines (ie. to achieve "change to sustain natural beauty") can be applied to all types of future developments, large or small. Whether a development proposal consists of a large scale recreational land use plan or improvements to a small retail operation, the common goal should be to preserve and enhance the visual quality of the Bow-Canmore valley.

4. GENERAL GUIDELINES

The *General Guidelines* have been established to assist in achieving the goal of sustaining the natural beauty of the Bow-Canmore valley. While they address development within each of the landscape character types identified within this study, they are not intended to be absolutely prescriptive. Final adoption and implementation of these general guidelines will require careful consideration and the input from a variety of groups and individuals.

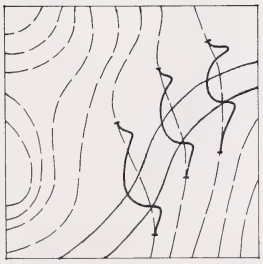
4.1 Site Development



Develop detailed landscape and site planning guidelines for existing built areas and for areas of future development. Guidelines should be specific to the landscape character type in which the development is located and help to sustain the natural beauty of the valley. The following items are especially important to the visual quality of this area and are points of concern that should be addressed in the development of detailed site planning guidelines.

Sensitive integration of proposed built development and the natural environment should be given the highest priority. The visual quality of a development will depend on the successful integration of the man-made elements with the natural landscape features that exist on the site. This careful integration will ensure preservation and retention of the natural features and thus the beauty of the Bow-Canmore valley.

The site of proposed development and its environs should be investigated thoroughly. All site development applications should be based on an accurate and comprehensive environmental survey of topography, ground cover, size and location of trees, site drainage, rock outcroppings and other natural features. Accurate information is necessary to effectively design a sensitive development using the natural features of the site and for authorities to evaluate a site development application.



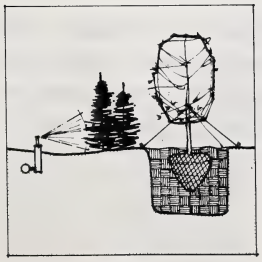
The development application should include detailed information of proposed grading. A proper grading plan should be prepared showing existing and proposed contours in order for authorities to effectively understand the impact of any changes to the existing vegetation and landforms. Design should be sympathetic with the existing grades to reduce the amount of cut and fill where possible.

Responsible site planning and design will ensure preservation of existing vegetation and site features. It is easier to preserve existing vegetation in the Bow-Canmore valley than to attempt to restore that which is destroyed.

The location and height of vegetation and landforms will dictate the location and size of development. To sustain the natural beauty of the Bow-Canmore valley, the density of development should be proportional to the visibility of the development. In areas of high visibility, density should be low. In areas where development is unseen from important viewpoints, higher densities might be considered.

Development proposals should include a visual impact assessment to aid authorities in the review of the submission. This assessment should include accurate three dimensional simulations of the overall development from important viewpoints showing the impact of the development on the site and any mitigative measures proposed to sustain the natural beauty of the Bow-Canmore valley.

All development proposals should detail the intended methods of protecting the natural systems during construction. The design of the development should consider the protection of natural features during regular use of the development after construction and endeavour to minimize undue encroachment into the natural areas that have been set aside for preservation.

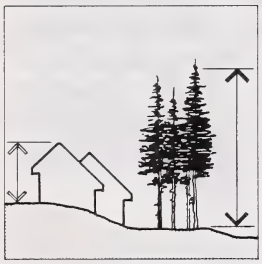


Methods of establishment, maintenance and irrigation of the proposed landscape should be outlined in the development proposal. The quality and extent of the proposed landscape established on the site and the areas of natural vegetation preserved shall be the minimum standard to be maintained on the site for the life of the development.

4.2 Architectural Guidelines

Architectural guidelines should be developed for the existing communities and all proposed development. The form, structure and appearance of the buildings should be complementary to the mountain valley setting. These guidelines should encourage an aesthetically pleasing built environment based on historical precedent, proper design principals, and the use of building materials appropriate to the Bow-Canmore valley.

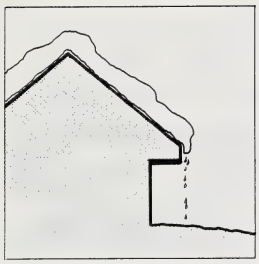
Development of architectural guidelines should take into account the unique characteristics of each landscape character type and reinforce the objective of sustaining the natural beauty of the valley.



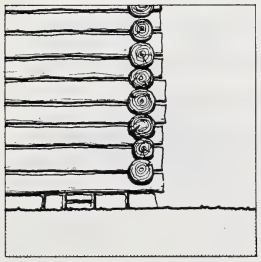
An important component of the architectural guidelines will be to establish the scale of the built development relative to the existing communities and the surrounding natural mountain setting. The character of new development should reinforce the small town atmosphere. The scale of all new development should be compatible, and in most cases subordinate, to the surrounding landscape character.

Building forms should compliment the mountain valley setting and respond to the sculptured forms and natural environment of each landscape character type.

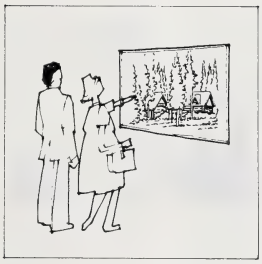
The sensitive use of indigenous materials and colours will establish a building vernacular and character that will reflect the local natural environment and thereby allow the built form to blend in with the natural setting of the Bow-Canmore valley.



The climate of the mountain valley should warrant special consideration for all new development. Proposed building design and site development should be a direct response to the variable micro climate conditions in the valley. Building form should provide a sense of protection from the elements, ie. steep pitched roofs with extended eaves are more visually appropriate in the Bow-Canmore valley than flat roofs with no overhangs.



The vernacular building of the mountain pioneer, railway heritage, and historical mining operations offer a rich and varied vocabulary on which current designers can develop architectural themes and guidelines for future development. Forms, details, use of materials and textures found in these traditions can provide suitable forms for the future.



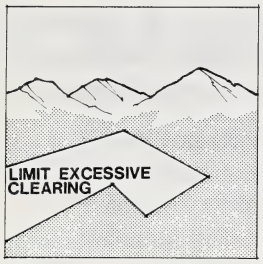
All development proposals should include accurate three dimensional representations of the proposed building and development viewed within the site. These drawings should show the impact of the development on the site and show all proposed landscaping and rehabilitation.

4.3 Signage and Lighting

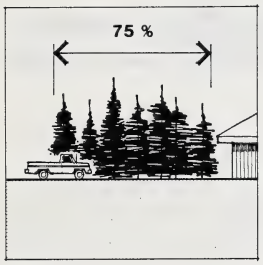
A detailed set of signage guidelines should be developed to protect the natural beauty of the Bow-Canmore valley. All development proposals should include signage as part of the application for approval. Signage should be kept to a minimum and perform only the most essential information tasks. The size, scale, materials, colour and location of all signage should be integrated with the building design and natural surroundings.

All new development proposals should include lighting guidelines as part of their application. An excessive amount of illumination detracts from the mountain valley setting. Lighting must be at an appropriate scale. The intensity, direction and type of illumination should be appropriate to the setting to sustain the natural beauty of the Bow-Canmore valley.

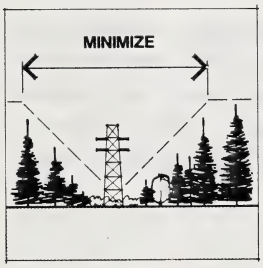
4.4 General Views



It is important to retain existing vegetation to the maximum extent possible. New development should be clustered within the forest. Clear cutting for development should not occur because the resultant gaps in the forest cover will appear unnatural and unsightly.



Minimize vegetation clearing in development areas. A minimum of 75% of the tree cover should be preserved to maintain the continuity of tree cover and to envelop proposed development.



Minimize clearing width for overhead utility lines to mitigate unsightly cut lines through existing forest cover. Allow natural regrowth to occur in the right-of-way of overhead utility lines. Use of defoliant sprays should be avoided. Allow shrubs and small trees to remain and natural regrowth to occur in the right-of-way; selectively cut trees only when they become too tall under the utility lines.

Minimize clearing widths for underground utility lines to mitigate unsightly cut lines through existing tree cover. Utilize the same trench or cleared right-of-way for more than one utility where possible. Allow natural regrowth to occur in right-of-way over deep utility lines.

Minimize clearing for golf course fairways. Fairways should appear as natural meadows when viewed from above. Limit the maintained grass area and allow natural grasses to encroach on the cleared fairway area.

The most effective screening of development may be achieved with existing vegetation and landform. Use existing vegetation to screen development from viewpoints that occur at higher or lower elevations.

Use natural landforms to screen development from viewpoints. Build in recessed areas to conceal development. Use existing slopes to buffer views.

Roofs will be the predominant built form when viewed from above. Roof colour should complement the surrounding existing vegetation retained in the development, i.e. darker shades of green in coniferous forest areas. The texture of smaller building forms is preferred over larger building masses.

Create soft natural edges in the landscape and avoid straight line cuts. Whether it be a clearing edge, roadway or utility corridor, straight lines appear unnatural and incongruous in the mountain valley setting.

5. GUIDELINES FOR VISUAL QUALITY OBJECTIVES AND LANDSCAPE CHARACTER TYPES

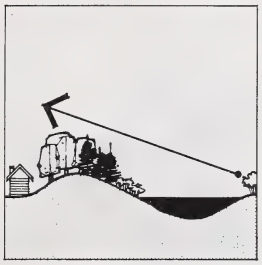
5.1 Full Protection

"Full Protection" is a Visual Quality Objective that provides for ecological change and natural succession only. No development should occur in these areas with the exception of low impact recreation such as hiking trails. Landscape character types included in this Visual Quality Objective are:

- Rivers and Lakes
- Rocky Mountain Peaks

5.1.1 Rivers and Lakes

Development in natural river and lake areas, or within a 60 m buffer zone from the high water mark should be carefully monitored. No development should occur in these areas with the exception of low impact recreation. In some areas where the river or lake edge is being used for low impact recreation, no further uses should be added and existing use should be carefully managed.



Development occurring outside of this zone should be screened from view from areas inside this zone to the maximum extent possible.

5.1.2 Rocky Mountain Peaks

Due to the high visibility of the Rocky Mountain peaks from all points in the valley and their high scenic quality, no development should occur in these areas.

5.2 Partial Protection

"Partial Protection" is a Visual Quality Objective that ensures that human intervention is unobtrusive to the resident or visitor and does not detract from the natural scenic beauty of the valley. All development in this area should be subordinate to the landscape character type in which it occurs.

Changes to the landscape should be minimized but may include the following land uses:

- Minor roads;
- Underground utilities for localized service;
- Reservoirs, ponds and water features;
- Single family housing;
- Low density townhouses;
- Low density hotel/visitor complex;
- Low impact recreation such as hiking trails;
- Recreation facilities including tennis, golf courses, equestrian facilities, trail systems, campgrounds; and
- Minor neighbourhood commercial.

The visibility of the above land uses should be minimized and all development should be visually harmonious with the natural environment. All development should conform to Section 4: *General Guidelines* and to the guidelines for visual quality associated with the following landscape character types:

- Coniferous Forests
- Mixed Vegetation
- Meadows
- Reservoirs and Minor Impacts to Water (such as channelized waterways, disturbed shoreline)
- Minor Impacts to Vegetated Areas (such as cleared areas)

5.2.1 Coniferous Forests

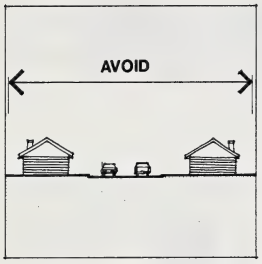
To ensure a stable, consistent and continuous forest cover as seen from lower viewpoints, development should not occur on slopes over 30%. Development proposals should include a slope analysis to determine visibility of development on slopes less than 30%.

No visible development should occur over 1600 m elevation. Any development in this zone should be totally screened from valley viewpoints. This will ensure that the forested slopes below the rocky mountain peaks in the Bow-Canmore valley will remain visually intact.

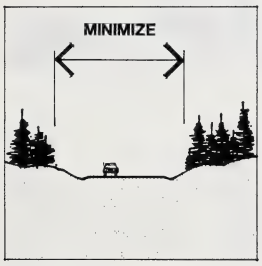
No development other than low impact recreation should occur within 40 m of steep slopes. This setback prevents erosion of tree stands on slopes and preserves a visual screen of any development from view below.

Establishment of new tree and groundcover growth is difficult in the climate of the Bow-Canmore valley. All proposed development should maximize retention of existing stands of trees. New development should retain a minimum of 40% of existing tree cover in developable land and 75% of tree cover overall. New development should conform to existing topography to facilitate tree preservation, minimize cut and fill slopes and prevent erosion problems.

Minimize the distance between existing tree cover and new built development. Existing tree cover should be maintained as close as possible to new development to ensure a visually continuous tree cover in the Bow-Canmore valley.



Clear cutting areas for development should be avoided. Preserve existing tree cover as a buffer between roads and buildings. Location of underground utilities should be coordinated with roadway alignment and building location to avoid excess clearing.



Minimize clearing width for all roadways. Design roadways to conform to existing grades to minimize cut and fill requirements. Revegetate all disturbed areas with coniferous tree species indigenous to the area. See Section 5.3.1 Roadways for additional guidelines.

Minimize clearing for golf course fairways. Utilize natural clearings where possible. Retain existing natural features as part of the golf course layout.

The density of development should be proportional to the visibility of development. Where development is unseen density could be higher. In areas with poor screening and frequent visibility, density should be lower. Concentrate development in unseen areas to ensure the visual continuity of the coniferous tree cover in the valley.

Tree height should determine the height of development. The scale of all new development should be subordinate to the height and density of the surrounding forest.

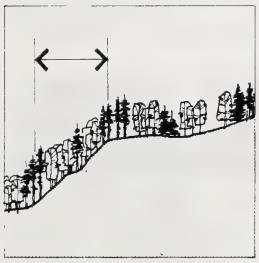
Trails developed in coniferous forests should be designed and sited to minimize any visible disturbance to landforms or vegetation.

All disturbed areas or areas designated for screening should be planted with coniferous tree species indigenous to the plant communities in the immediate area.

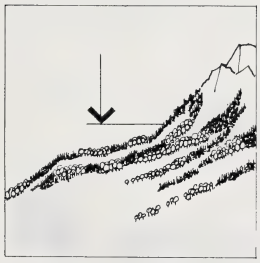
5.2.2 Mixed Vegetation

Many of the guidelines from Section 5.2.1: *Coniferous Forests* are also applicable to the Mixed Vegetation landscape character type. Refer to these guidelines and the ones listed below.

Establishment of new trees, shrubs and groundcovers in this zone is even more difficult than in the coniferous forest zone, especially on south facing slopes and windy exposed areas in the eastern portion of the study area. All development should maximize retention of existing vegetation. All disturbed areas, or areas designated for screening, should be planted with coniferous and deciduous tree and shrub species indigenous to the immediate area. Rehabilitation should be undertaken in a manner that promotes natural succession.



Some areas of mixed vegetation occur on south facing slopes. These forested areas are less dense than the north facing coniferous forests and provide less screening capacity. Thus development should not occur on slopes over 25%. All development proposals should include a slope analysis to determine visibility of development on slopes less than 25%.



No development should occur over 1500 m elevation. All forested slopes above this elevation should remain intact.

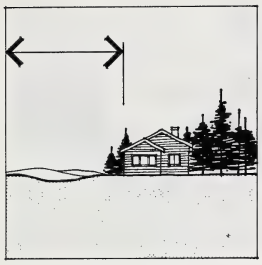
No development other than low impact recreation should occur within 60 m of steep slopes to preserve a visual buffer of development from view below.

Tree height should determine the height of development. The scale of all new development should be subordinate to the height and density of the surrounding forest.

Proposed trails in areas of thinner vegetation cover should be carefully sited to avoid visual scars and resulting erosion. Existing erosion and scars should be revegetated and trails rerouted to areas less visible.

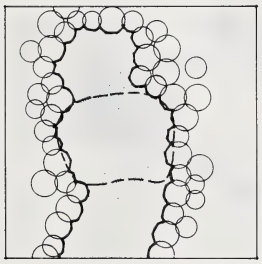
Areas of endangered flora and fauna should be identified. Preserve these ecosystems by creating conservation areas. Pedestrian trails should be carefully sited in these areas to avoid any damage to vegetation.

5.2.3 Meadows



Minimize development in centre of meadows. Concentrate built development at edges or in tree cover to screen development from open meadows.

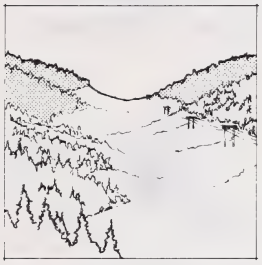
Preservation and protection of existing vegetation is extremely important. All existing vegetation should be preserved in meadows and at the edge of meadows. Establishment of new vegetation on south facing slopes and in windy areas is extremely difficult. Replanting of all disturbed areas should be done with indigenous tree, shrub and grass species. Rehabilitation should be undertaken in a manner that promotes natural succession.



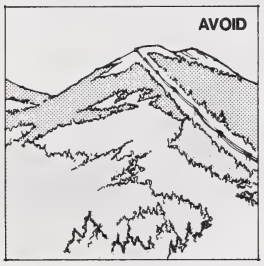
Where golf resort developments are planned, utilize open meadows for golf course fairways. Avoid extensive regrading and design fairways to utilize existing grades. Minimize the area of maintained grass on fairways.

R.V. parks and campsites should be screened from view. Encroachment of campgrounds into meadows is visually disruptive due to the lack of vegetative screening. Campgrounds located in meadows would be particularly unpleasant due to the discomfort that would result from the high wind conditions.

All utilities should be placed underground where possible. Any major utility line additions should utilize existing corridors or right-of-ways.



Where it is not possible to place utility lines underground, utilities should be sited at the edge of vegetation where poles and lines are less noticeable. Avoid placing utilities in the centre of a meadow or valley where the utility lines will become the focal point of a view and have a negative visual impact.



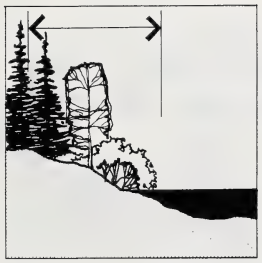
Avoid clearing vegetation for utility lines. Straight line clearing adjacent to a meadow appears unnatural. Utility lines should avoid prominent natural features which will draw attention to the structures.

Utility lines should follow the existing contours. Use existing topography and vegetation to soften the visual impact of structures and lines.

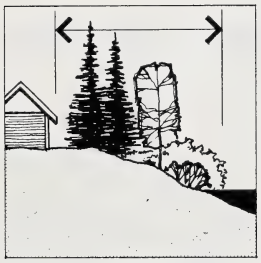
Where utility lines are in highly visible locations, additional planting and revegetation can help soften the visual impact.

5.2.4 Minor Impacts To Water

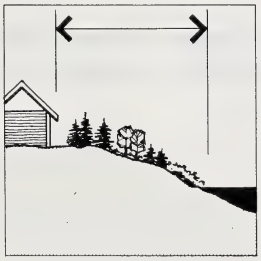
Preserve all existing natural water courses in the Bow-Canmore valley.



Preserve all areas of existing natural vegetation and topography at the edge of water courses and water bodies in the Bow-Canmore valley and within a 50m buffer zone from the water's edge.



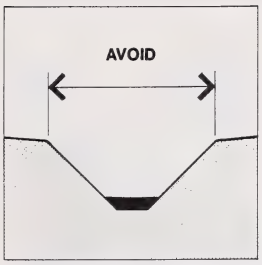
Where development is to occur, new buildings or roads should be set back 60 m from the edge of water or water course and all existing vegetation should be preserved at the water's edge.



If development is to occur where the edge of water has been previously disturbed or cleared of vegetation, the developer should be responsible for replanting and re-establishing a natural buffer at the water's edge.

Create planted pockets along man made slopes or rip-rapped slopes to visually enhance long slopes devoid of vegetation.

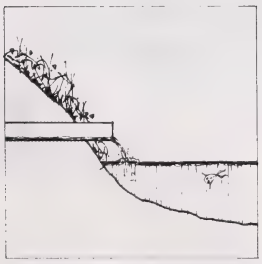
5.2.4 Minor Impacts To Water (Continued)



Vary the gradient of man made slopes to avoid unnatural continuous slopes of the same gradient at water's edge. Modulate contours and blend new grades in with existing natural slopes. Avoid stream channelization, wherever possible, to retain the natural character of the water course.

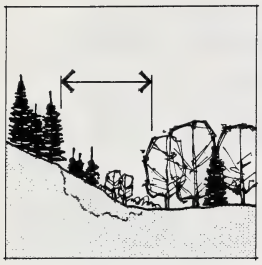
Low impact development such as hiking trails may occur in the buffer area adjacent to water courses. Trails should be carefully sited to avoid damage to existing vegetation and topography.

Site bridges carefully to minimize disruption to the natural character of the water course.

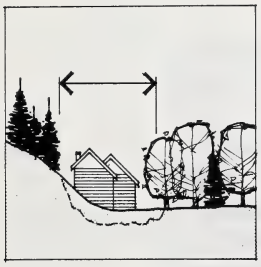


Prohibit discharge of harmful materials into water courses and lakes to maintain water clarity and healthy adjacent vegetation.

5.2.5 Minor Impacts to Vegetated Areas



All disturbed areas in the Bow-Canmore valley should be revegetated with trees, shrubs and grasses indigenous to the landscape character type surrounding the disturbed area. For additional information on rehabilitating a particular disturbed area, consult the guidelines for the specific landscape character type in which the disturbed area occurs.



Where a disturbed area is within a proposed development area, development may occur in the disturbed area providing all other guidelines are satisfied. This would allow maximum preservation of existing natural vegetation and landforms.

5.3 Modification and Improvement

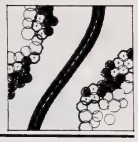
"Modification and Improvement" is a Visual Quality Objective which may allow human activity to dominate the characteristic landscape, but should at the same time use naturally established form, line, colour and texture. The character and appearance of built forms should complement the mountain valley setting and existing conditions should be enhanced in scenic value and quality.

Changes to the existing manmade landscape should, in all cases, include enhancement towards a more natural appearance. New development may include the following land uses:

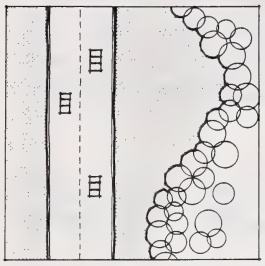
- All land uses listed under Section 5.2: *Partial Protection*;
- Major utility lines in existing right-of-ways only;
- Major roads in existing right-of-ways only;
- Additional railway development in existing right-of-ways only;
- Higher density residential;
- Regional commercial facilities;
- Institutional and educational facilities;
- Governmental facilities; and
- Urban recreation and sports complexes.

New development should be subordinate to the natural features of the Bow-Canmore valley. All new development and improvements to existing development should conform to Section 4: *General Guidelines* and to the guidelines for visual quality associated with the following landscape character types:

- Major Roadway.
- Town Core.
- Highway Commercial.
- Residential/Hamlets.



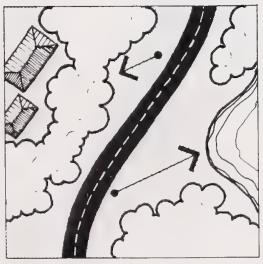
5.3.1 Major Roadways



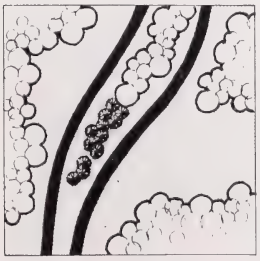
Clearing edge at roadside should not be a straight line parallel to road edge but an undulating natural forest edge complementing existing meadows and taking advantage of changes in existing topography. The undulating clearing lines will help to maintain the scenic quality of transportation corridors in the Bow-Canmore valley.

Landscape planning principles should also be applied to roadway development. Numerous plants spaced closely together should be used to create an effective mass. If the grouping is planted too thinly it may look unnatural as it becomes a collection of individual trees with no edge or mass.

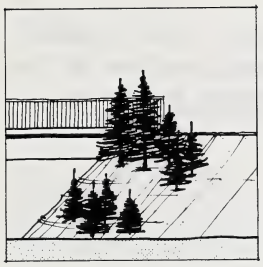
Revegetate slopes at edge of clearing for roadways to provide a more natural edge. Avoid cutting grass to allow a natural regeneration of native grasses, shrubs and trees to occur.



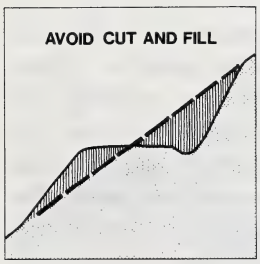
Views from the road are important. Areas can be planted or thinned to control desired views or screen unattractive areas. The design of roadway planting or clearing can both modify and create views along the right-of-way. As in this example, trees are retained to screen buildings and forest thinned to provide a view of the lake.



Landscape road medians with natural tree groupings and/or preserve existing trees in the median.

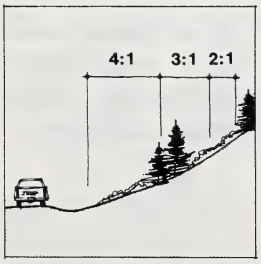


Provide tree and shrub planting near road bridges and intersections. Avoid large expanses of maintained grass which preclude natural succession of plant communities indigenous to the Bow-Canmore valley.

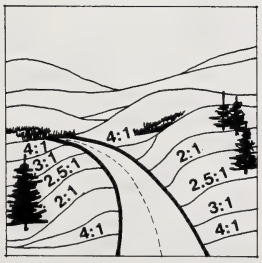


Roads should follow the contours of the natural landscape. This allows the road to fit into the landscape and avoid excessive cut and fill which can be visually unattractive and environmentally disruptive.

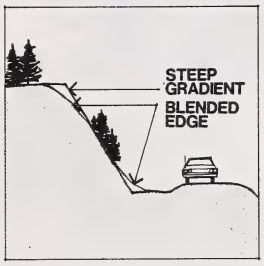
With both horizontal and vertical alignment, emphasis should be placed on fitting the alignment into the landscape while maintaining continuity and consistency. The sympathetic unity of plan and profile will create a road which is visually pleasing and a harmonious element in the landscape. The highway alignment should be designed to have a graceful three dimensional appearance and should appear smooth, continuous and predictable without bumps, kinks or unexpected movement.



In areas where some cut and fill is necessary, the earthwork should be done in a way that is sympathetic to the natural landform and improves the visual experience of the road. Avoid unnatural, continuous slopes of the same gradient at the road edge. Modulate contours and blend with existing natural slopes.

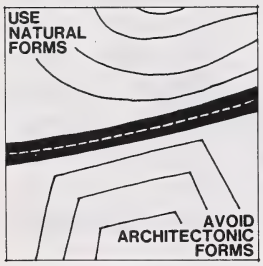


Where the grades of the slopes vary along the roadway, longitudinal grading is needed to create a smooth transition between the varying grades and to blend the various slopes into the landscape. A smooth transition from a less steep cut and fill slope can be attained by creating a series of gradually increasing slopes.

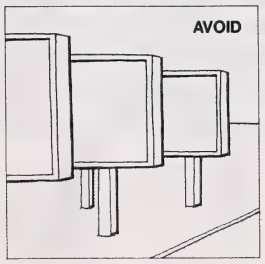


In some areas it may not be possible to use a varied gradient because of a steep slope. Rounding the top and toe of the slope will provide a transition with the adjacent landforms.

In mountainous terrain where slopes are greater than 2:1, the use of rounded cross-sections will not always be possible. These steeper slopes can be modified using terracing, cribbing and retaining walls. These should be constructed to allow the maximum amount of vegetative regrowth for erosion control and aesthetic appeal. Materials used for retaining structures should be intrinsic to the landscape; presenting an interesting variation to, while blending with, the natural landform.

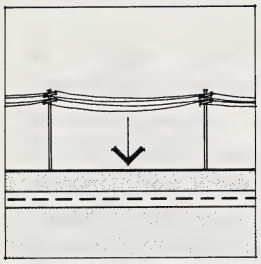


A cut or fill slope will blend into the natural terrain if angular forms are avoided. Generally, smooth curves are better suited to the natural landscape than angular forms.

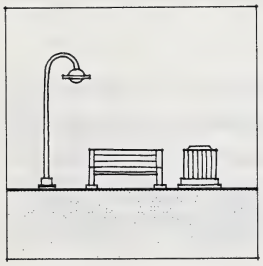


Strict signage control is important. Do not allow billboards and backlit plastic signage. Continue the use of standardized roadway information signage. Signage should be kept to the minimum that is required for public information and safety.

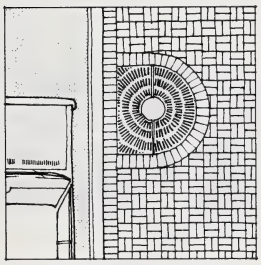
5.3.2 Town Core



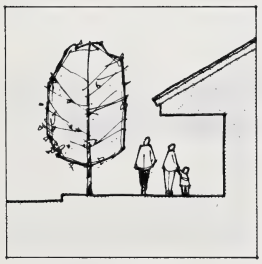
Place all existing utility lines underground for improved visual quality. New development should have all utilities placed underground.



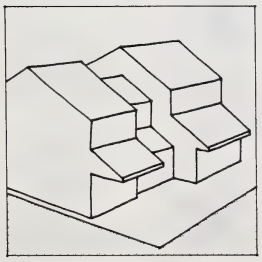
Coordinate street and park furnishings including seating, trash containers, information kiosks, light standards and street signs. Design of all site furnishings should be appropriate to the natural mountain setting and pedestrian scale.



Create interesting surfaces to walk on. Use brick, concrete pavers, aggregates or patterned concrete to differentiate pedestrian surfaces from vehicular and create a visually interesting surface pattern.



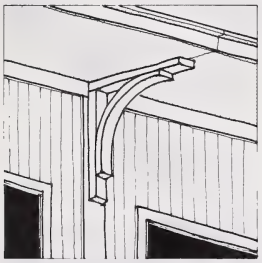
Ensure all new developments create interesting pedestrian spaces. A pleasant streetscape including roof overhangs and street tree planting provides a pleasant visual image for the town. A plan for pedestrian flow and circulation is just as important as vehicular circulation planning.



Develop height and setback bylaws that promote variety and interest of building form. Instead of a continuous building form two stories high and flat roofed set flush against the property line along the street, encourage a variety of setbacks from the street and changes in roof shapes and overhangs.

5.3.2 Town Core (Continued)

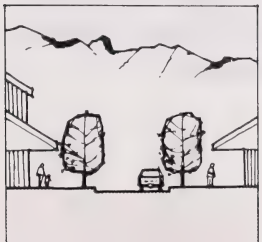
Develop guidelines for signage. Signage should be complementary to the mountain valley context of Canmore and in scale with the pedestrian environment. Signs should be contained within the building envelop and not project into the public space. Limit signs to the business name and function; avoid clutter. Ban large backlit moulded plastic signs, backlit canopies, product advertisements and large temporary portable signs. None of these types of signs are appropriate in the mountain valley setting.



Develop architectural guidelines and controls for Canmore that complement and enhance the natural mountain valley setting (see Section 4: *General Guidelines*). Enhance the "sense of place" within the town by creating an architectural theme with consistent local materials, colour and style. Create a clearly identifiable town centre.

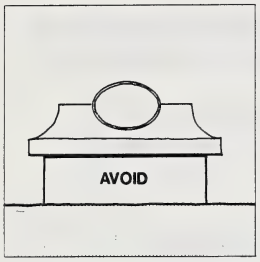
Develop a long range vehicle parking plan to control the visual intrusion of parked cars on the pedestrian environment. Where possible, screen or partially screen parked cars from pedestrian view by fencing, shrubs and tree planting. Break up large areas of parking asphalt with pockets of shrubs and large trees.

Identify buildings which have historic or cultural value and ensure they are preserved such as the Canmore Anglican Church constructed in 1895.



Retain mountain vistas as viewed from the main streets in the Town of Canmore and other communities.

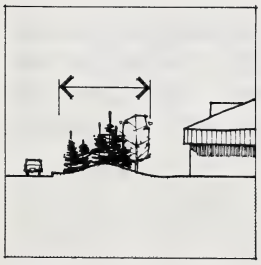
5.3.3 Highway Commercial



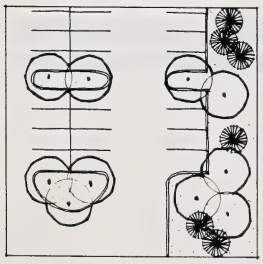
Architectural controls should control, or prohibit, use of corporate identity architecture. Commercial development in the Bow-Canmore valley should relate specifically to the natural mountain valley setting. "Cookie Cutter" building elevations of commercial establishments typically found in Canadian cities have no place in the natural environment of the valley and should not be permitted.

Commercial signage should be carefully controlled. A profusion of huge backlit plastic signs is not appropriate and destroys the desired natural setting of the valley. Blend signage into the landscaping and site development rather than allowing it to dominate with larger signs and taller poles.

Landscaping is as important in commercial projects as residential. Landscape guidelines should require developers to save existing tree stands and substantially replant trees to create the effect of the parking or building nestled in the forest. Retain the visual continuity of the forest cover in the Bow-Canmore valley.



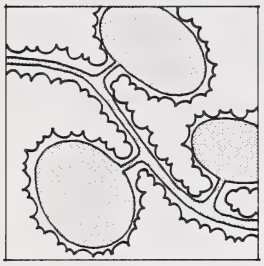
A minimum 10 m buffer for vegetation should be required between the road and commercial establishment. Buffer should consist of existing tree stands and/or a heavily planted landscaped berm.



Large parking lots with expansive areas of asphalt should be avoided. Parking lots should be small areas of asphalt sited between large stands of trees.

5.3.4 Hamlets/Residential

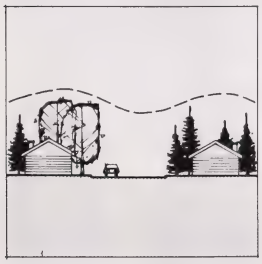
Screen existing exposed residential development from roadway views with large mass plantings of indigenous trees along the Bow-Canmore valley.



Design new residential development in nodes or clusters with a visual sense of neighbourhood identity. Preserve stands of trees as buffers between neighbourhood clusters.

Nestle new development into the existing tree stands. Utilize existing vegetation and mass plantings of indigenous tree species to provide visual screening of the development and privacy for the residents. Avoid clear cut development to retain the visual continuity of the tree cover in the Bow-Canmore valley.

Allow the existing landform to determine building layout and roadway design. Avoid excessive cut and fill. This will provide individual character to the development and allow all components of the development to blend with the natural surroundings.



Encourage tree planting in existing residential neighbourhoods to provide for continuity of forest cover throughout the valley.

5.4 Improvement

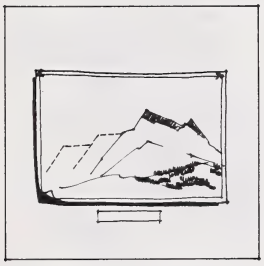
"Improvement" is a Visual Quality Objective which asserts that existing conditions should be enhanced in scenic value and quality.

New development should be minimized. Existing mines and industrial plants should be improved based on Section 4: *General Guidelines* and the guidelines established for the following landscape character type:

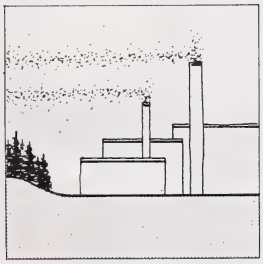
- Mines and Industrial Plants

5.4.1 Mines and Industrial Plants

All existing mines in the Bow-Canmore valley should have approved reclamation plans in place at all times. These plans should be available for public review. New mining activity or extensions to existing leases should have an approved reclamation plan and visual impact assessment in place prior to commencement of mining activities.

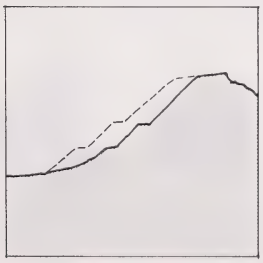


Detailed reclamation plans should illustrate, in both plan and three dimensional form, the extent of mining at 5 year intervals. Reclamation should be an ongoing process which begins early in the life of the mine and is continued through to the completion of mining activity.



Airborne dust and particles should be eliminated to minimize the negative impact on views to the surrounding natural landscape. Airborne pollution should also be eliminated to prevent damage to existing vegetation and minimize visual discolouration of plant material. Water pollution controls should ensure clarity in rivers, lakes and streams.

Where rock outcrops or mountains are completely removed by mining operations, the area should be recontoured to blend naturally with surrounding grades and be replanted with indigenous plant material. Rehabilitate disturbed areas in a manner that promotes natural succession and re-establishes the natural scenic quality of the Bow-Canmore valley.

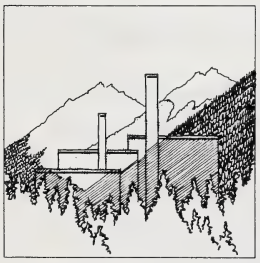


Where mining occurs on bare, steep mountain faces, the resulting scars should be recontoured to match the shape of the original rock face with gullies, crevices and terraces. Edges of scars should blend in naturally with surrounding rock face contours.

5.4.1 Mines and Industrial Plants (Continued)

Where mining occurs on partly forested slopes, the resulting scar should be recontoured to allow for replanting of indigenous vegetation in a manner similar to original vegetation patterns on the slope. Edge of planting areas should blend in naturally with surrounding vegetation.

All mining activities should be screened from immediate foreground view from adjacent public roads or development.



Distant views of mining activities are more difficult to screen. The use of paint or indigenous building materials to blend in with the distant background will help reduce the impact of the plant buildings. Foreground tree planting may also minimize visual impact and improve the scenic quality of the Bow-Canmore valley.

6. CONCLUSION

The highest visual quality of the Bow-Canmore valley is attributed to the natural scenery; or in other words, to the areas least impacted by man. The rocky mountain peaks, rivers and lakes are considered the most beautiful, followed by coniferous forests, mixed vegetated areas and meadows. Minor manmade impacts such as fences, trails and poles do not seriously detract from the natural beauty. However, more intense developments such as roadside strip developments are considered unattractive, while industrial activity and mining are the least attractive.

To sustain the visual quality of the Bow-Canmore area, the following general concepts should be duly considered.

- The Visual Quality Objectives of the *Bow-Canmore Visual Impact Assessment-Report* should be followed to the maximum extent.

- Natural features such as riparian areas, the benchlands and the hoodoos should be protected.

- Elements within the valley's less attractive landscape character types should be improved.

- Sites for new development should be located so that "visibility" is minimized.

- New development should be in a form that is visually harmonious with the natural environment.

- The visual quality guidelines described in the *Bow-Canmore Visual Impact Assessment -Design Manual* should be appropriately applied to the built environment throughout the conceptual design, planning and construction phases of development.

The following recommendations outline a strategy for the implementation of the Bow-Canmore Visual Impact Assessment.

- The Bow-Canmore Visual Impact Assessment should be used as a reference in the recommended review of existing land use controls (ie. zoning) based on the results of the comparison between Development Potential and the Visual Quality Objectives.

- The *Bow-Canmore Visual Impact Assessment-Design Manual* should be used by proponents, planners and administrators as a reference in:

  a. Reviews of development applications (consideration should be given to include a visual impact assessment wherever it is deemed to be appropriate);
  b. Location of public works based on visual criteria; and

c. Land acquisition and scenic easements to be based on Visual Quality Objectives and Landscape Character, as well as important viewsheds wherever it is deemed to be appropriate.

- When an Environmental Impact Assessment is required in the review of any development proposal within the Bow-Canmore valley, a visual impact assessment component should be included. Computer simulation and GIS analysis may become essential tools in this type of assessment.

- The process employed in the Bow-Canmore Visual Impact Assessment and described in the *Design Manual* and the *Technical Appendix* may be referenced as a model in establishing a methodology for the visual impact assessment component of Environmental Impact Assessments.

- Public involvement is a key element in the visual review process. A local public group should be established to provide the opportunity for further public involvement in the visual review process. Such a group would also create a non-confrontational forum for discussion among proponents and opponents of development.

Implementation of the above recommendations will promote high standards in the visual quality component of land use in the Bow-Canmore valley in keeping with a visual concept for the future of "change to sustain natural beauty".

FIGURE #4

Compatible Land Uses by Visual Quality Objective Zone

LAND USE	VISUAL QUALITY OBJECTIVES			
	Full Protection	Partial Protection	Modification & Improvement	Improvement
Minor Roads	✗	●	✓	✓
Major Roads/Railways	✗	✗	●	○
Minor Utilities/Services	✗	●	●	○
Utilities/Services	✗	✗	●	○
Reservoirs/Ponds/Water Features	✗	✓	✓	✓
Low Density Residential (Single Fam. only)	✗	●	✓	○
Medium Density Residential	✗	●	●	○
Higher Density Residential	✗	✗	●	○
Low Density Hotel/Visitor Svcs.	✗	✗	✓	○
Medium Density Hotel/Visitor Svcs.	✗	✗	●	○
Low Impact Recreation (hiking, fishing, etc.)	✗	✓	✓	✓
Medium Impact Recreation (cabins, golf, etc.)	✗	●	●	✓
High Impact Recreation (sports complex)	✗	✗	●	○
Minor Neighborhood Commercial	✗	●	●	○
Neighborhood Commercial	✗	✗	●	○
Educational/Institutional	✗	✗	●	○
Government Facilities	✗	✗	●	○
Industrial	✗	✗	✗	●
Mining	✗	✗	✗	●
Reclamation to Natural Conditions	NA	NA	✓	✓
Conservation	✓	✓	✓	NA

✓ Compatible
● Should be permitted with use of guidelines
○ Unlikely to occur but if so, follow guidelines in "Modification & Improvement"
✗ Should not be permitted
NA Not Applicable

7. GLOSSARY OF TERMS

The following glossary is based primarily on definitions from:

Smardon, Richard C., James F. Palmer and John P. Felleman, Foundations for Visual Project Analysis, John Wiley and Sons: New York, 1986, pages 331 to 332.

and

Alberta Forestry, Lands and Wildlife, 1988. Forest Landscape Management Strategies for Alberta, pages 55 to 56.

Aesthetic(s)

(a) Generally, the study, science or philosophy dealing with beauty and with judgements concerning beauty. (b) Giving visual pleasure. (c) The theory of perception or of perceptibility.

Aesthetic Zoning

Zoning which regulates property in the interest of protecting aesthetic values. (The U.S. Supreme Court, in the 1954 Berman vs. Parker case, upheld this extension of the original legal justification for zoning powers with its finding that "It is within the power of the legislature to determine that the community should be beautiful as well as healthy.")

Adverse Visual Impact

Any impact on the land or water form, vegetation, or any introduction of a structure which adversely changes or interrupts the visual character of the landscape and disrupts the harmony of the natural elements. (U.S. Bureau of Land Management, 1977)

Background

The distant part of a landscape, picture, etc.; surroundings, especially those behind something and providing harmony or contrast; surrounding area or surface. Area located 8 km or greater from the viewer.

Characteristic

That which constitutes a character; that which characterizes; a distinguishing trait, feature, or quality; a peculiarity.

Contrast

Diversity of adjacent parts, as in colour, tone, or emotions.

Design

A deliberate plan or scheme to arrange elements so that a desired pattern results.

Detailed Assessment

A relatively intensive reconnaissance of a landscape or parts of a landscape.

Enhancement
A short-term management alternative used to raise the value, desirability or attractiveness of a landscape.

Foreground
The detailed landscape found 1 km or less from the observer.

Full Protection (Preservation)
A Visual Quality Objective that provides for ecological change only.

Improvement
A Visual Quality Objective that provides for enhancement in (scenic) value and quality.

Landscape
Land form and land cover forming a distinct pattern; portion of land that the eye can see in one glance.

Landscape Management
The assessment, evaluation, design and manipulation of a landscape.

Landscape Unit
An area indicating landscape similarity.

Middleground
The space between the foreground and the background in a picture or landscape. The area located from 1 km to 8 km from the viewer.

Mitigation
A method or procedure designed to reduce or lessen the impacts on the environment caused by development (i.e. visual activities).

Modification
A Visual Quality Objective meaning human activity may dominate the characteristic landscape but must, at the same time, use naturally established form, line, colour and texture. It should appear close to a natural occurrence when viewed in foreground.

Partial Protection (Retention)
A visual objective which aspires to ensure that human intervention is unobtrusive to residents or visitors and does not detract from the natural scenic quality.

Perception
(a) People's impression of an object or space as based on past and/or anticipated experiences. (b) Making oneself aware of all conditions and applicable factors; comprehension.

Rehabilitation

A short-term management alternative which returns existing adverse visual impacts, through modification or elimination, to a desire scenic quality. (U.S. Bureau of Land Management, 1977)

View

A broad landscape or panorama looked toward or kept in sight; the act of looking toward this object or scene.

Viewpoint

Location from whence a landscape can be seen.

Viewshed

The visible area, as it appears from one or more viewpoints.

Visual

A mental image attained by sight.

Visual Absorption Capability

The relative ability of a landscape to accept management manipulations without significantly affecting its visual character.

Visual Impact

An expression experienced by what is seen.

or

The significance and/or severity of visual resource quality change as a result of anticipated activities or land use that are to take place (or have taken place) on or adjacent to the landscape. (A.C.E. 1984) (a) A contrasting intrusion in the unified order of landscape, seen and appreciated as a misfit in appearance or function. A visual impact contributes to a reduction in scenic values. (b) The degree of change in visual resources and viewer response to those resources caused by highway development and operations.

Visual Quality

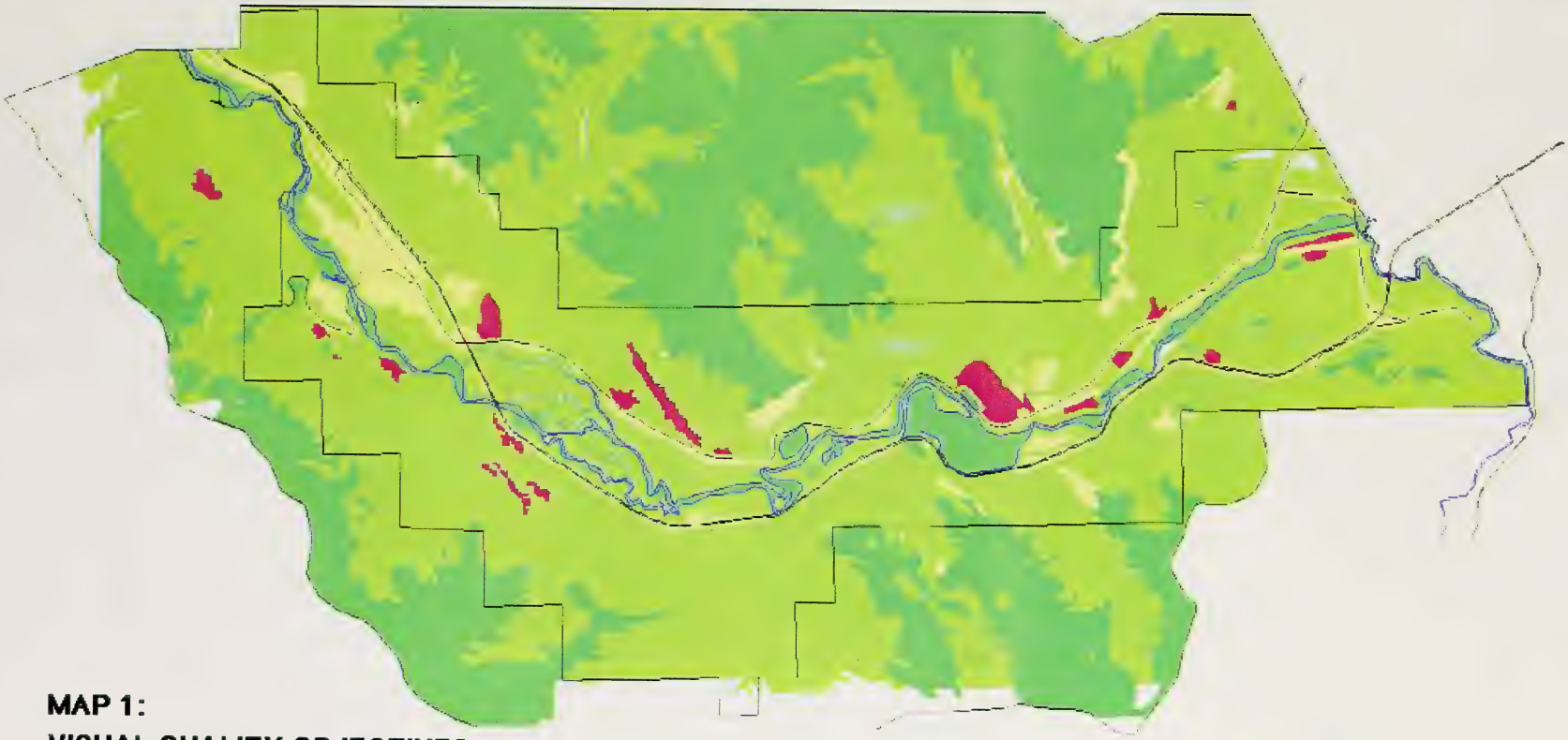
The visual significance given to a landscape determined by cultural values and the landscape's intrinsic physical properties.

Visual Quality Objective

A desired level of excellence based on scenic qualities of an area. Refers to degree of acceptable alteration of the visually characteristic landscape.

APPENDIX

LIST OF MAPS



MAP 1:

VISUAL QUALITY OBJECTIVES

Bow Canmore Visual Impact Assessment

Alberta, Canada

Prepared For: Alberta Tourism

Prepared by: Landplan Associates Ltd. Design Workshop, Inc.

March, 1991

North

0km 1km 2km 3km 4km

Full Protection
Partial Protection
Modification and Improvement
Improvement

MAP 2:

LANDSCAPE CHARACTER

Bow Canmore Visual Impact Assessment

Alberta, Canada

Prepared For: Alberta Tourism

Prepared by: Landplan Associates Ltd. Design Workshop, Inc.

March, 1991

North

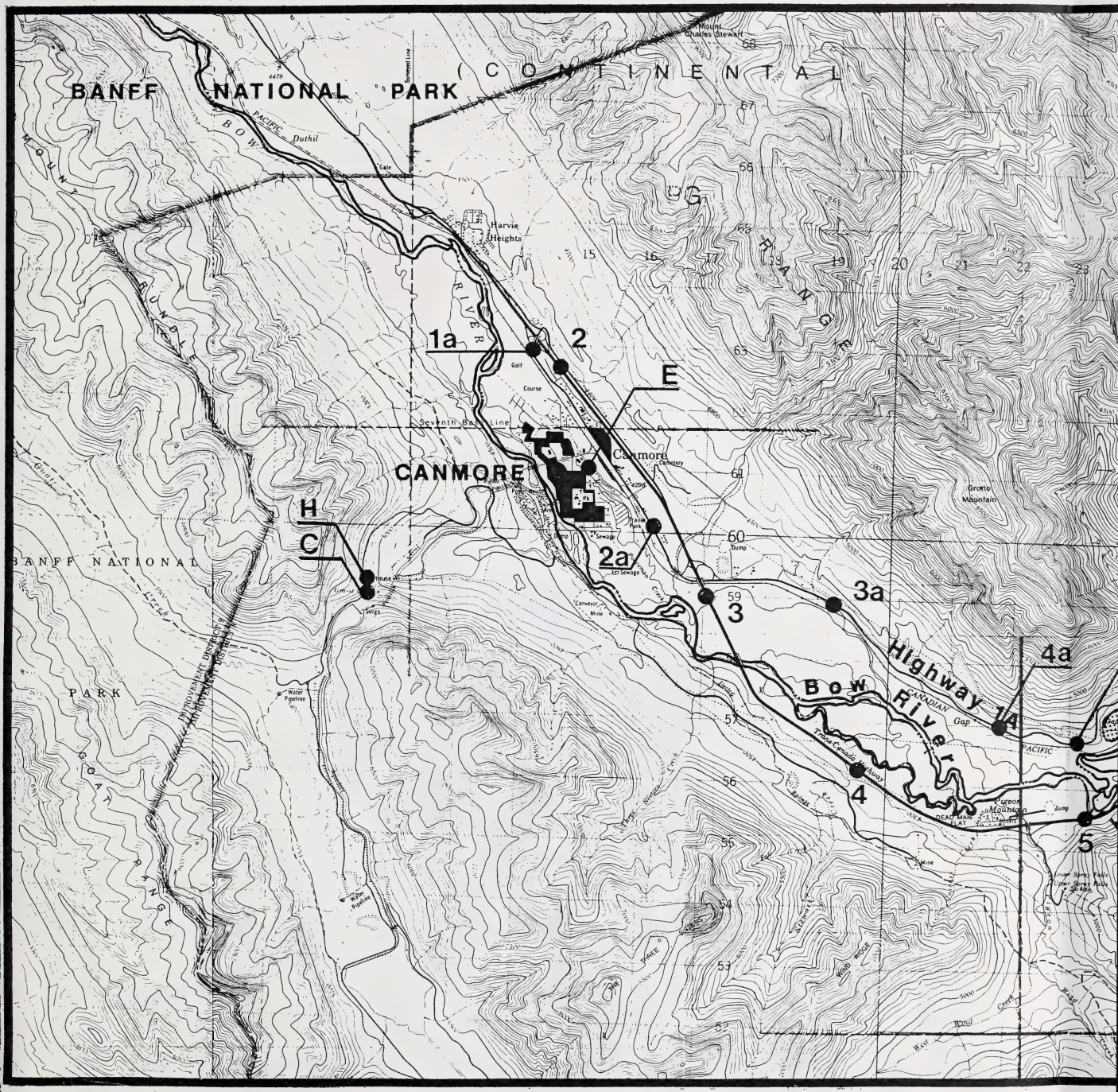
0km 1km 2km 3km 4km

NATURAL
- Rivers and Lakes
- Coniferous Forest
- Mixed Vegetation
- Meadows
- Rocky Vegetated Slopes
- Rocky Mountain Peaks

MINOR IMPACTS
- Reservoirs and minor impacts• to water
- Vegetated areas with minor impacts•

MANMADE
- Major Roadways
- Town Core
- Hamlets : Residential
- Highway : Commercial
- Mines : Industrial Plants

• Minor Impacts; utility corridors, small roads, recreation areas



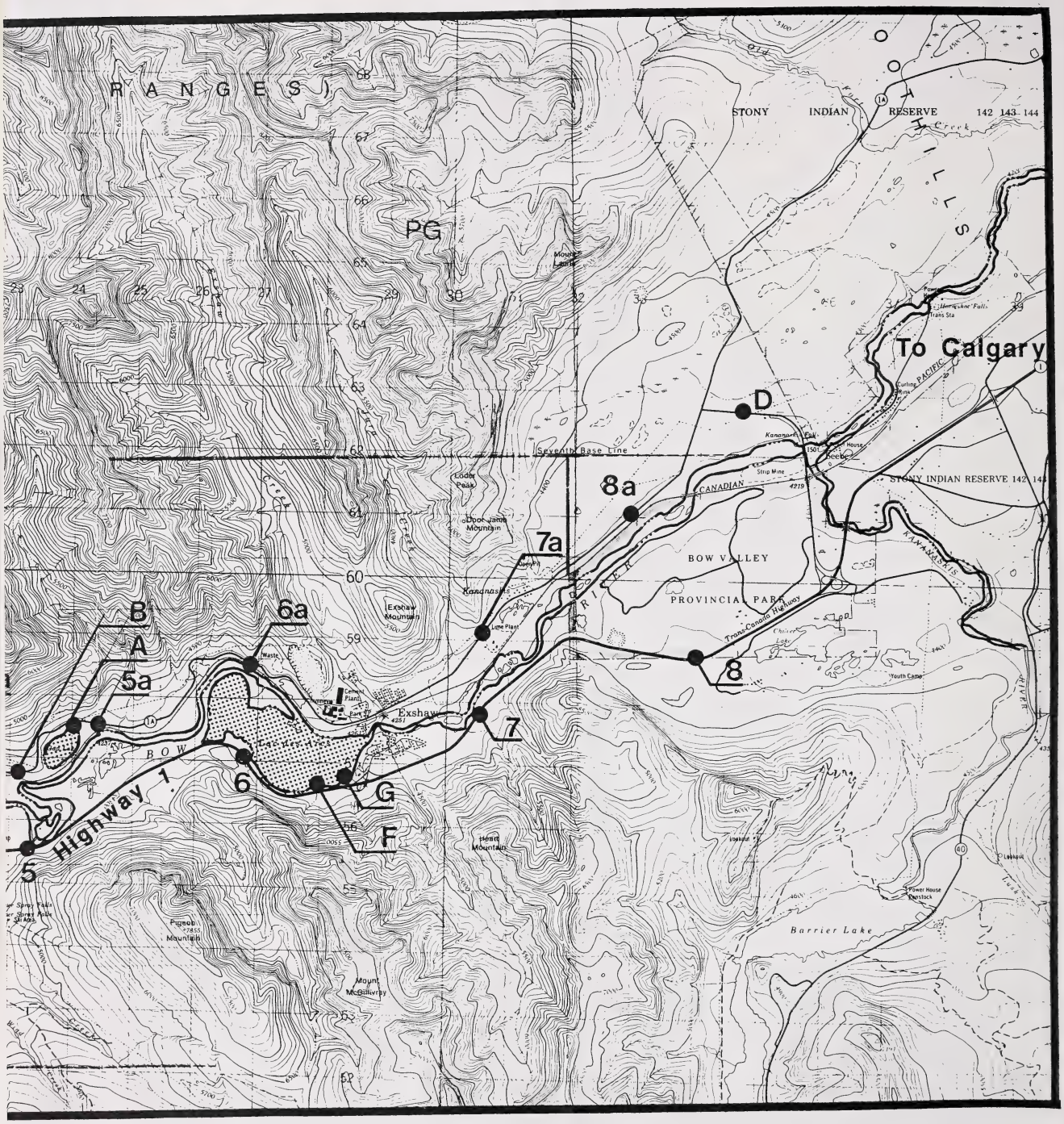
MAP 3: VIEWPOINT LOCATIONS FOR VIEWSHED GENERATIO

Bow-Canmore Visual Impact Assessment

Alberta, Canada

Prepared for:
Alberta Tourism

Prepared by:
Landplan Associates, Ltd. and Design Workshop, Inc.



ATION

● E	8 Most Important Viewpoint Locations
● 6	Viewpoint Locations on Hwys 1 &1A

North 0km 1.6km 3.2km

MAP 4:

AREAS OF SCENIC SIGNIFICANCE

Bow Canmore Visual Impact Assessment

Alberta, Canada

Prepared For: Alberta Tourism

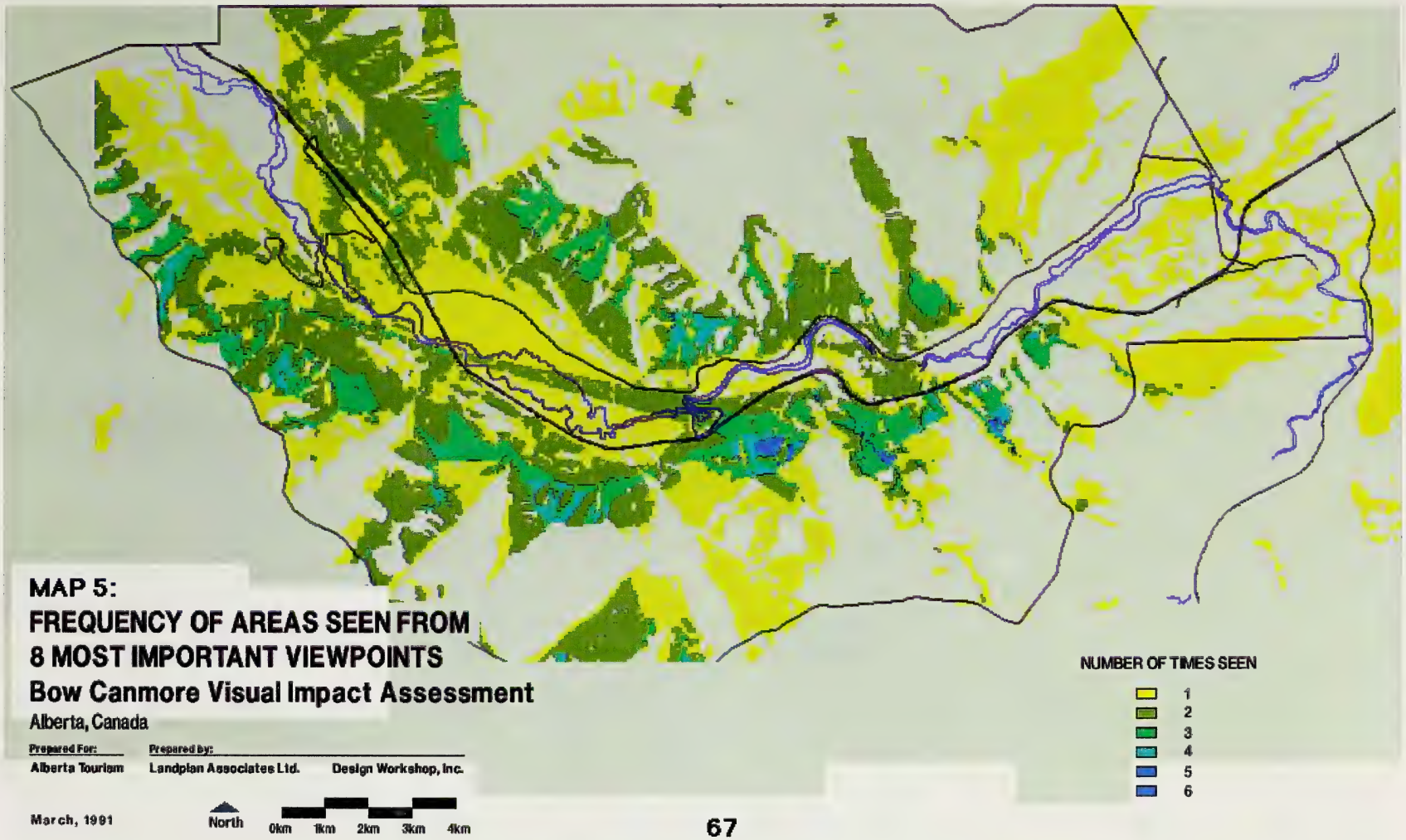
Prepared by: Landplan Associates Ltd. Design Workshop, Inc.

March, 1991

North

0km 1km 2km 3km 4km

Ecological: Wildlife, Vegetation, Landform
Ecological: Fish, Water
Scenic Recreational
Cultural, Historical

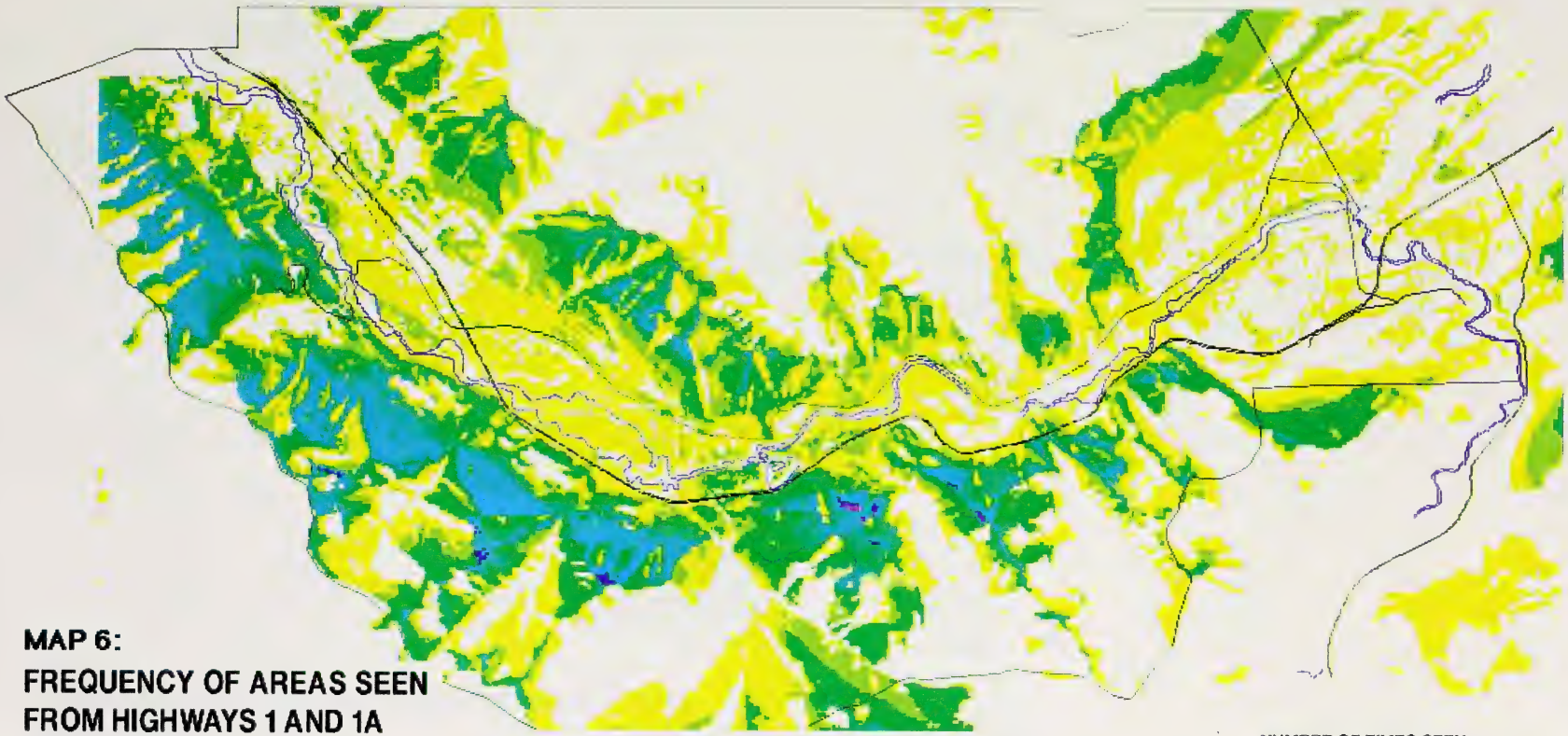


MAP 5:
FREQUENCY OF AREAS SEEN FROM 8 MOST IMPORTANT VIEWPOINTS
Bow Canmore Visual Impact Assessment
Alberta, Canada

Prepared For: Alberta Tourism

Prepared by: Landplan Associates Ltd. Design Workshop, Inc.

March, 1991



MAP 6:

FREQUENCY OF AREAS SEEN FROM HIGHWAYS 1 AND 1A

Bow Canmore Visual Impact Assessment

Alberta, Canada

Prepared For: Alberta Tourism

Prepared by: Landplan Associates Ltd. Design Workshop, Inc.

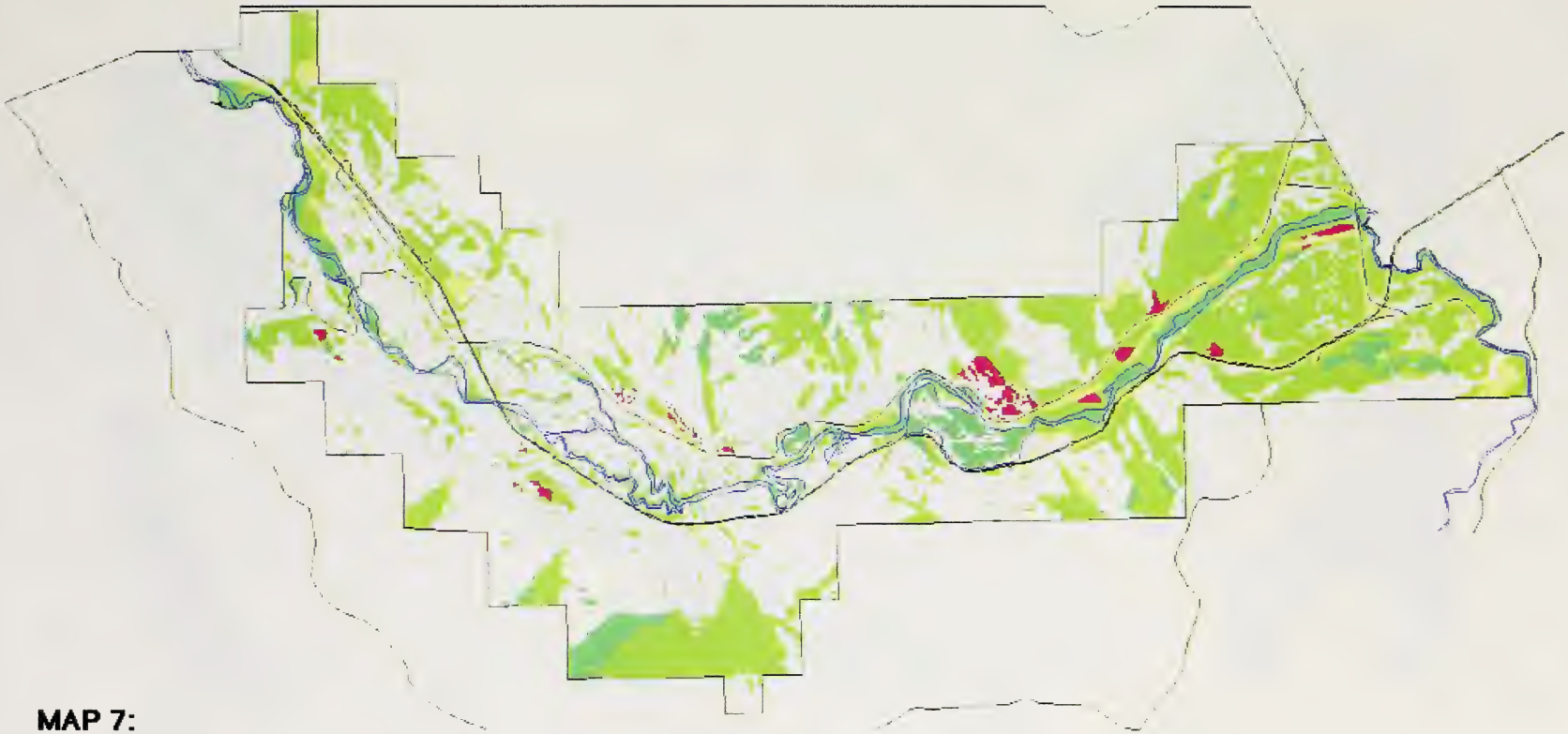
March, 1991

North

0km 1km 2km 3km 4km

NUMBER OF TIMES SEEN

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16



MAP 7:

COMPARISON OF VISUAL QUALITY OBJECTIVES AND UNSEEN AREAS

Bow Canmore Visual Impact Assessment

Alberta, Canada

Prepared For: Alberta Tourism

Prepared by: Landplan Associates Ltd. Design Workshop, Inc.

March, 1991

North

0km 1km 2km 3km 4km

Full Protection
Partial Protection
Modification and Improvement
Improvement

MAP 8:

SLOPE

Bow Canmore Visual Impact Assessment

Alberta, Canada

Prepared For: Alberta Tourism

Prepared by: Landplan Associates Ltd. Design Workshop, Inc.

March, 1991

North

0km 1km 2km 3km 4km

0% to 9%
10% to 19%
20% to 29%
30% to 39%
40% to Over